

The Indo-Europeanization of Europe: the intrusion of steppe pastoralists from south Russia and the transformation of Old Europe

1. Introduction. The collapse of Old Europe of the Neolithic and Copper Age coincides with the process of Indo-Europeanization of Europe—a complicated transformative process leading to a drastic cultural change reminiscent of the conquest of the American continent. Archaeological evidence, supported by comparative IE linguistics and mythology, suggests a clash of two ideologies, social structures and economies perpetrated by trauma-inducing institutions. The Proto-or Early Indo-Europeans, whom I have labeled ‘Kurgan’ people (since 1956), arrived from the east, from southern Russia, on horseback. Their first contact with the borderland territories of Old Europe in the Lower Dnieper region and west of the Black Sea began around the middle of the 5th millennium B.C. A continuous flow of influences and people into east central Europe was initiated which lasted for two millennia, c. 4500–2500 B.C.

The thesis that Europe was Indo-Europeanized by early migrating farmers from Anatolia coming in the 7th millennium to southeast Europe and then spreading across the continent, as assumed by Colin Renfrew (1987) is a gross misinterpretation of Old Anatolian and Old European cultures, and a disregard of interdisciplinary studies. Anatolian farmers of the Çatal Hüyük type, as well as those from neolithic Europe west of the Don, cannot be shown to be Indo-European. The evidence obtained through interdisciplinary research suggests that their culture, in economic, social and religious aspects, was very different, even opposed, to what is known as ‘Indo-European’ on the basis of comparative linguistics and mythology.

Following this collision of cultures, Old Europe was transformed, and later European prehistory and history became a ‘marble cake’ composed of non-IE and IE elements. The subsequent existence of a very strong non-IE linguistic and mythological substratum cannot be overlooked. To begin to understand this complex situation, it is nec-

essary to start thinking in terms of the social and symbolic structures of cultures.

Linguistic evidence suggests that the original IE homeland had to be located between the areas occupied by the Finno-Ugric, Semitic and Caucasian linguistic families. A discussion of this problem is beyond the scope of this article and, in my belief, beyond the reach of adequate archaeological sources. The archaeological materials of the Volga-Ural interflue and beyond the Caspian Sea prior to the 7th millennium B.C. are, so far, not sufficient for ethnographic interpretation. More substantive evidence emerges only around 5000 B.C. We can begin to speak of 'Kurgan people' when they conquered the steppe region north of the Black Sea around 4500 B.C. coming from the Volga basin. The Russian word *kurgan*, borrowed from Turkish, means literally a 'barrow' or 'tumulus', and the term 'Kurgan tradition' is a blanket term for the culture of these seminomadic pastoralists who built round funeral mounds (Gimbutas 1956).

No weapons except implements for hunting are found among grave goods in Europe until c. 4500 B.C., nor is there evidence of hilltop fortification of Old European settlements. The invaders from the east were armed with thrusting and cutting weapons: long dagger-knives, spears, halberds, and bows and arrows.

The 'Kurgan tradition' represents a stark contrast to the civilization of Old Europe which was, in the main, peaceful, sedentary, matrifocal, matrilineal, and sex egalitarian. The Kurgans were a warlike, patriarchal and hierarchical culture with distinctive burial rites that included pit graves with tent- or hut-like structures of wood or stone, covered by a low cairn or earthen mound. Their economy was essentially pastoral with a rudimentary agriculture and seasonal, transient settlements of semi-subterranean houses. These features correspond with those of PIE culture reconstructed by comparative linguistics and mythological means.

The Kurgan tradition became manifest in Old European territories during three waves of infiltration: I at c. 4400–4300 B.C., II at c. 3500 B.C., and III at c. 3000 B.C. This chronology does not represent the evolution of a single group of people, but a number of various steppe peoples who shared a common tradition, extending over broad temporal and spacial parameters. Kurgan Wave I people were from the Volga steppe; Kurgan Wave II, who were culturally more advanced, developed in the North Pontic area between the Lower Dniester and the Caucasus mountains; Kurgan Wave III people were again from the Volga steppe. (Russian archaeologists use the terms *early Yamna* for

Kurgan I; *Mikhailovka I* or *Maikop* culture for Kurgan II; and *late Yamna* for Kurgan III. *Yamna* comes from *yama*, 'pit', i.e. 'pit-grave' under a barrow.) The livelihood and mobility of the Kurgan people depended on the domesticated horse, in sharp contrast to the Old European agriculturalists for whom the horse was unknown.

2. The domestication of the horse. Horse domestication may have taken place in the area between eastern Ukraine and northern Kazakhstan around 5000 B.C. or earlier, most likely at forest edges and close to rivers, whose basins were also forested. It is not surprising that the earliest evidence for the presence of the domesticated horse comes from the forest-steppe of the Middle Volga basin where a neolithic economy—stock breeding and small-scale farming—was present from the end of the 7th millennium B.C.

The earliest artifacts associated with the cult of the horse and evidence for horse sacrifice have been discovered in the Middle Volga region from this time, i.e. around 5000 B.C. In the cemetery at S'ez-zhee, from c. 5000 B.C. on the bank of the Samara River, district of Kuybyshev, miniature figurines of horses were found carved out of flat bone. These were perforated, suggesting that they were worn as pendants and must have had symbolic meaning. Horse skulls and long bones were found above the burials in sacrificial hearths (Vasil'ev & Matveeva 1976). Bones from a domesticated horse have been systematically analyzed and identified at Dereivka in the Lower Dnieper basin, 70 kilometers from the town of Kremenchug. (Bibikova 1967; Bökönyi 1987) Dereivka belongs to the Sredni Stog II group of the Kurgan culture which entered the Dnieper steppe around 4500 B.C., or somewhat earlier.

By the middle of the 5th millennium B.C., large herds of horses were kept in the forest-steppe and steppe zone between the Lower Dnieper on the west and northern Kazakhstan. The analysis of animal bones in the settlement at Repin on the bank of the Don River has shown that 80% of all domesticated animal bones belonged to the horse (Shilov 1975:13). Great numbers of domesticated horse bones (more than 100,000) have also been discovered near Petropavlovsk in northern Kazakhstan in a site having Kurgan I (*early Yamna*) affinities. There, horse bones constitute about 90% of all domesticated animal bones (communication from Merpert 1977).

The motive for the domestication of the horse may have been not its use for meat and milk but its ability to be ridden, which must have occurred from the initial domestication. Riding was essential for large-

scale horse breeding and the control of cattle. Antler tine cheek pieces used as bridle equipment have been found in the lower Dnieper region from the middle of the 5th millennium B.C. (six occurred at Dereivka).

The bovine remained the main draft animal of the Volga Neolithic as evidenced by figurines of probably yoked oxen while the swift horse became the 'motor' of transport. This innovation cut traveling time by a factor of five or more, and affected the exploitation of steppe resources. Riding provided the ability to strike out across great distances, instigated cattle looting or horse-stealing raids, the accumulation of wealth, trading capacities, and the development of violence and warfare. Once the steppe was conquered, it inevitably became a source of outward migration.

Material remains from the first half of the 5th millennium B.C. show that a uniform culture was spread throughout an enormous territory east of the Don River and between the Middle Volga, the Caucasus Mountains and the Ural Mountains. Almost identical ornaments, tools and weapons in sites thousands of kilometers apart speak for an unprecedented mobility. The first incursion into the Dnieper steppe by these horse-riding peoples is dated before the middle of the 5th millennium B.C. Not much later, Kurgan I warriors appeared in the Danube valley.

Horse riding changed the course of European prehistory. Coupled with the use of weapons, the mounted warrior became a deadly menace to the peaceful, unarmed agriculturalists. From the middle of the 5th millennium B.C., the swift horse became a carrier of unrest that continued for millennia.

3. The first wave of Kurgans into East Central Europe c. 4400 B.C. and its repercussions. After penetrating the Dnieper rapids region and the area north of the Sea of Azov around 4500 B.C., the Kurgans struck central Europe (cf. Figures 10-6A and 10-6B in Gimbutas 1991:358–359). Their graves were exclusively for male burials, a distinct contrast to the even ratio of male-female burials in contemporary Old European cemeteries. The Kurgan tombs were reserved for the warrior elite with their favorite war gear—the spear, arrow, and flint dagger.

Burial excavations reveal two aspects of IE ideology found for the first time in east central Europe at Suvorovo in Moldavia, and at Casimcea in the Lower Danube basin, Romania. These two graves demonstrate the Kurgan religious concepts of the worship of the horse as a divine animal and the custom of suttee or sacrifice of the female

consort or wife. At Suvorovo, a chieftain was buried in a deep rectangular pit lined with stones containing a horse-headed scepter of porphyry, his symbol of power, and other objects deemed necessary in afterlife. A woman was apparently put to death at this time and laid to rest beside the body of the dead lord. Remnants of a garment covered with mother-of-pearl laminae and a necklace of *unio* shell beads express her relatively elevated station in life, but the only gift accorded her was a flint scraper. The double-grave was covered by a massive barrow and surrounded by a circle of upright stones 13 meters in diameter. A Casimcea chieftain in Romania was buried with a horse-head scepter of porphyry, his power symbol, along with five flint axe-heads, fifteen spear points and three daggers. Horse-headed scepters are paralleled elsewhere by finds in Moldavia, southern Romania, Transylvania, Bulgaria, and Macedonia (Gimbutas 1977). These wands, with a carved horse head, are strikingly similar to those recovered from the Volga region, the north Caucasian steppe, and north-eastern Dagestan.

An important aspect of IE religious ritual was the horse sacrifice. The archaeological indications of equine sacrifice, in addition to finds from the S'ezzhee cemetery in the Kuybyshev district on the Volga river, are found at Kherson in the Ukraine where a Kurgan tomb was flanked by a pit containing a horse skull (Viezzhev 1960). In the Kurgan cemetery north of the Danube delta, near Odessa, there was a ritual hearth and a central grave containing pairs of horse and bull skulls (Shmagliy & Chernyakov 1970). In 1986, a complete horse skull cut from the neck was found in a Tiszapolgár pit dating from the end of the 5th millennium B.C. at Tiszapolgár in northeastern Hungary. This is the earliest evidence in central Europe (personal communication from S. Bökönyi 1987).

For the Karanovo-Gumelnita civilization in South Romania and Bulgaria, the Kurgan incursions proved catastrophic. The farming villages and townships were easily overrun and groups of people must have fled from the lower Danube basin westward (Morintz & Roman 1968).

In the first half of the 4th millennium B.C., along the Black Sea coast in East Romania and Bulgaria, a Kurganish complex appeared which is designated as Cernavoda I¹. The fortified Cernavoda sites were strategically located on high river terraces and consisted of a few small, surface or semi-subterranean dwellings on sites generally covering no more than a 100 × 200 meter area. These people bred stock (including the horse) and engaged in hunting, fishing, and primitive

agriculture, and their antler and bone tools are identical to finds in the steppe north of the Black Sea. They produced gray, badly baked, crushed-shell tempered ceramics, related to the Kurganoid wares. No cereal grains were found, despite the presence of antler and bone hoes, grinding stones, and sickle blades. Horse bones were ubiquitous among the remnant heaps of domesticated animals. Tools were predominantly of bone but included maceheads and perforated hammer-axes of antler and stone, flint scrapers and knives, a few copper awls and chisels.

The Kurgan disruption in the lower Danube basin jolted a succession of dislocations further west in Yugoslavia, Hungary, Czechoslovakia, and as far west as the upper Danube, upper Elbe, and upper Rhine basins.

The discontinuity of the Old European Varna, Karanovo, Vinča, and Lengyel cultures in their main territories and the large scale population shifts to the north and northwest are indirect evidence of a catastrophe of such proportions which cannot be explained by climatic change, land exhaustion, or epidemics (for which there is no evidence in the second half of the 5th millennium B.C.). Direct evidence of the incursion of horse-riding warriors is found, not only in single burials of males under barrows, but in the emergence of a whole complex of Kurgan cultural traits: hilltop settlements, the presence of horses, the predominance of a pastoral economy, signs of violence and patriarchy, and religious symbols which emphasize a sun cult. These elements are tightly knit within the social, economic and religious structure of the Kurgan culture.

A chain of hillforts that appeared on high riverbanks in the middle and upper Danube basin, in Hungary, Austria, western Slovakia, Moravia, Bohemia, Bavaria, and Württemberg² is a new phenomenon in European prehistory. The earliest hillforts are contemporary with late Lengyel and Rössen materials or immediately follow them. Radiocarbon dates place this period between 4300 and 3900 B.C.³ Pit-dwellings are found which sharply contrast with the solid above-ground long houses of Lengyel and Linearbandkeramik type. These contain pottery decorated with solar designs.

Alongside the fortified hills, a change of culture can be seen in the emergence of Kurgan type burials in the Elbe-Saale basin, dated to the first half of the 4th millennium B.C. The emergence of single male burials under round mounds in eastern Ireland and central England in the middle of the 4th millennium B.C. contrast sharply with the local tradition of communal burials (Bley 1989). This signals the arrival of the first people carrying Kurgan traditions across the Channel or North Sea from the continent, probably coming after the second wave.

It is readily apparent that a portion of central Europe was Kurganized to varying degrees soon after the first Kurgan wave. While the civilization of Old Europe was agricultural, matricentric, and matri-lineal, a transformation took place around 4000 B.C. to a mixed agricultural/pastoral economy and a classed patriarchal society which I interpret as a successful process of Indo-Europeanization. There was a considerable increase in husbandry over tillage. The change of social structure, religion, and economy was not a gradual indigenous development from Old Europe, but a collision and gradual hybridization of two societies and of two ideologies.

Not all of central Europe was converted to the Kurgan way of life as an outcome of Kurgan Wave I, but it is clear that most of the Danubian basin began to be ruled from hillforts. It took many successive generations for the Old European traditions to become gradually replaced. The indigenous populations either co-existed but remained separate from the Kurgan immigrants or, in the majority of regions, were over-run and subjected to domination by a few Kurgan warriors.

4. The second wave, c. 3500 B.C., and the continuous transformation of Central Europe after the middle of the 4th millennium B.C. An increased Kurganization occurred during the second half of the 4th millennium B.C. The Kurgan tribal leaders of the North Pontic region turned to the Cucuteni culture in western Ukraine and Moldavia not later than the middle of the 4th millennium B.C. There they encountered a flourishing civilization which had survived the first Kurgan infiltration. This time it succumbed and was transformed through a process of amalgamation with Kurgan elements. This change can in no way be attributed to a natural evolution of indigenous elements. What continued of the indigenous culture was a pale reflection of earlier times.

The lords of the area can be recognized in royal or other elite tombs contained in mortuary houses covered with stone cupolas under barrows with stone rings. Around 3500 B.C., the culture south and north of the Carpathian Mountains was transformed beyond recognition. The transition from a matristic to a patriarchal era, in most territories of central Europe, was completed by the end of the 4th millennium B.C. New cultural groups emerged, formed of Old European and Kurgan elements (cf. Figure 10-13 in Gimbutas 1991: 368).

This period of transformation coincides with changes in metal

technology and the beginning of the Early Bronze Age in the Circum-Pontic region. The new metallurgy is characterized by bronzes of copper and arsenic, copper and tin, and copper with arsenic-tin (As, Sn, As-An bronze) which replaced the pure copper metallurgy of the Old European Copper Age (Chernykh 1978). Tests made on arsenical bronze prove it to have been reasonably hard and durable, but a side effect must have been the slow and sure poisoning of the smith. The complex of tools and weapons that emerged north and west of the Black Sea—daggers, knives, halberds, chisels, flat axes, shafthole axes—does not show a continuity from Old European local types (Anati 1976: Figs 57, 64, 75). Rather, the shapes of bronze artifacts have analogies in the north Caucasus, in Transcaucasia, and the Near East. The tomb structure of Kurgan Wave II points to its origin in the North Pontic area.

During the second half of the 4th millennium B.C., the new regime seems to have successfully eliminated or changed whatever remained of the old social system. Hillforts became the centers of power while the surrounding area supported either pastoral or agricultural populations, depending upon the environment and the numbers of indigenous people who remained. Villages were small, the houses usually semi-subterranean. But in the economy, an amalgamation of the Old European and the Kurgan cultural systems is clearly evident. In some areas, such as in central Bulgaria, cultivation of emmer, barley, vetch, and pea agriculture continued intact, probably carried on by the remaining indigenous population. In other territories, seasonal camps of a pastoral economy prevailed.

The Baden-Vučedol culture in the Middle Danube Basin and the Ezero culture in central Bulgaria of the second half of the 4th millennium B.C. are eloquent examples of an amalgam of indigenous and alien elements. Among the Kurgan elements, with good parallels in the North Pontic area, are the use of vehicles, oxen team and plough (the latter known from engravings and burials), horse-riding, animal sacrifices with human burials, the predominance of solar decorated pottery, especially braziers, the appearance of a complex of drinking vessels used primarily by males, as well as the power wielded by males and the importance of hillforts (Tasić 1967; Banner 1965; Sochacki 1970:319ff.; Schmidt 1945; Pittioni 1954:191ff.)

The Globular Amphora culture emerged in the northern European Plain between central Germany and East Romania (Wiślański 1966; Gimbutas 1985; Sveshnikov 1973). This culture is known from hundreds of graves and from a few seasonal camps on sand dunes, small

villages, and hilltop sites. The Globular Amphora culture was preceded by the Funnel-necked Beaker culture (TRB) and by the Cucuteni in western Ukraine and Romania. In spite of a different substratum, the Globular Amphora culture was remarkably uniform.

There is similarity between the burial rites of the Globular Amphora people and those of the Kurgans of the Maikop culture in the North Pontic region. Both used mortuary houses built of stone slabs and practiced the ritual burial of horses, cattle, and dogs, as well as human sacrifice in connection with funeral rites honoring high-ranking males. The typical vessel for which the culture is named is an amphora found in graves with a flat or rounded base. The clay was tempered with crushed shells, as in Kurgan pottery. In shape and construction, this pottery, particularly that from Volynia and Poland, is much the same as that from Mikhailovka I sites, north of the Black Sea. The cord-impressed, incised, or stabbed decoration is restricted to the neck and shoulder.

A classed social structure and the dominant position of men is demonstrated by richly equipped graves which contained astounding numbers of sacrificed human beings and animals. In such graves, the chief adult male occupied the central position in the stone cist and was accompanied into the afterlife by family members, servants, oxen, horses, dogs, as well as boars and other game animals.

It is apparent that the emergence of the Globular Amphora culture in the north European plain is crucial to an understanding of the Indo-Europeanization of this part of Europe. We must bear in mind that the fundamental social, religious, and economic components of the Globular Amphora culture link it to the north Pontic area. The fact that the Globular Amphora culture is more homogenous than the Baden suggests that if these people were indeed IE speakers, they completely succeeded in subverting the indigenous population or in converting them to their own creeds, customs, and language.

5. The third wave, c. 3000 B.C.: the intrusion of the 'Yamna' Kurgans of South Russia into East Central Europe and their impact. Kurgan Wave III, c. 3000 B.C., was a massive infiltration which caused drastic changes in the ethnic configurations of Europe (cf. Figure 10-32 in Gimbutas 1991:385). Population shifts to western, northern, and northeastern Europe, as well as to the Adriatic region and Greece, account for the final Indo-Europeanization of Europe.

The third Kurgan thrust is identified by hundreds of graves in

Romania, Bulgaria, Yugoslavia (south Banat), and eastern Hungary, which are identical to late 'Yamna' (pit-grave) burials in the Lower Dnieper, the Lower Don, and Lower Volga basins (Dinu 1974; Ecsedy 1979; Jovanović 1983). Diagnostic features are: male burials in deep pits; timber hut construction within the grave, roofed with oak or birch beams; floor covering of wood mats, bast, or ashes; grave walls hung with rugs or other textiles; predominantly western orientation of the dead; and supine skeletal position with contracted legs (lateral in later graves). Ochre was scattered with the dead. Round and low barrows, usually no higher than 1 meter, were surrounded by stone rings or ditches.

Eighty skeletons from Yamna graves have been examined in Romania. The Yamna people were tall statured and strongly built, with predominantly dolichocephalic skulls, medium cranial height and rounded occipital with variable facial mass, pronounced nose, and a robust mandible (Necrasov 1981:60–61; Schwidetzky 1980:356; Zinevich 1967). This type corresponds to that of the Yamna graves in Ukraine and south Russia.

6. The impact of wave III on the Balkans and Greece. The Vučedol shift from its core area in the middle Danube basin into the peripheries caused changes in the whole Balkan peninsula, as well as in central Europe. Vučedol sites virtually disappeared from Hungary and the Danube lands in Yugoslavia. The migration to the northwest (to Bohemia) and south (to Albania and Greece) must have started c. 3000–2800 B.C. Dalmatia, western Bosnia, and Albania were reached from the eastern Alpine region. Along the Sana River in western Bosnia, the Vučedol people occupied areas not previously inhabited. Their settlements in the newly acquired lands consisted of naturally protected hillforts and caves, usually difficult to access (Benac 1962). Cemeteries of tumuli, including stone cists, were discovered at the Cetina River and at Rumen near Sinj near the Adriatic coast. At Mala Gruda, Tivat, a royal tomb in a tumulus came to light equipped with a silver axe, a gold dagger of Early Helladic II type (2900–2500 B.C.), and Vučedol vases (Parović, Pešikan & Trbušović 1974). This tumulus was nearly 4 meters high and 30 meters across. At the base was a round platform built of river pebbles, and the central grave, a mortuary house built of stone slabs, was lowered into the ground. The male skeleton was in a contracted position with a silver axe and gold dagger deposited at his waist, with five gold rings and a copper plate at his head. A beaker and a conical dish stood at his feet. The tomb architecture and

burial rites at Mala Gruda are the same as those of the North Pontic Maikop culture. Mala Gruda is located halfway between northwestern Yugoslavia and western Greece, where kurgans of the same tradition also emerged in the early 3rd millennium B.C.

The migration of the Vučedol south to the mountainous regions and to the inhospitable and stony Dalmatian coast cannot be explained as a normal territorial extension occasioned by a population increase. There was a conspicuous occupation of a series of caves, both on the continent and on the Adriatic islands. Ample evidence from the islands of Leucas and the northwestern Peloponnese suggests that the Kurgans arriving in Greece, at the beginning of the 3rd millennium B.C., via Albania and the Adriatic, were descendants of the Indo-Europeanized east central Europeans after Wave II, i.e., the Baden-Vučedol people.

The cemetery of Steno on the island of Leucas, consisting of 33 kurgans, is a good example of the changed customs in Greece (Dörpfeld 1927; Hammond 1974). These tumuli belong to several phases, dating from the Early Helladic II and III, c. 2900–2250 B.C., and the buried chieftains and warriors were probably members of the dynasty ruling the island. The earliest and largest tumulus, encircled by a stone retaining wall, stood apart from the others; its mortuary chamber was exceptionally large and well made, with walls of large round stones. This contained the skeletons of a man and a woman, probably a suttee burial. Other early tumuli contained inhumation graves in shafts covered by stone slabs, under a cairn of stones and a pile of earth. This type of grave architecture and burial practice also goes back to the North Pontic tradition which was diffused into east central Europe by Kurgan Wave II.

Many other tumuli from the western Peloponnese are reported as Early Helladic III or Middle Helladic, i.e. second half of the 3rd beginning of the 2nd millennia B.C. Thus, in the middle and late 3rd millennium B.C., the Kurgan tradition seems already to have been firmly established. A series of destroyed Early Helladic II sites in the Argolid speaks for a gruesome takeover. Destruction is evidenced at Lerna, Tiryns, Asine, Zygouries, and Aghios Kosmas. At Lerna, the burned house of Tiles was not rebuilt, apsidal structures appeared, and the settlement plan changed (Caskey 1960).

The takeover in Greece was apparently analogous to that of east central Europe which entailed a transformation of the basic social structure and administrative system by the establishment of a ruling class in hillforts. A study of the physical types of the population shows that the Kurgan warrior groups were not massive in numbers and did

not eradicate the local inhabitants. They came in small migrating bands and established themselves forcefully as a small ruling elite.

7. The impact on Western Europe: the Bell Beaker migrations. In my view, the Bell Beaker folk were descendants of the Yamna people amalgamated with the Vučedol. Their culture is known in North Yugoslavia as Vinkovci, and in Southwest Hungary as Samogyvár.

The Bell Beaker culture of western Europe which diffused between 2500 and 2100 B.C. between central Europe, the British Isles, and the Iberian Peninsula (cf. Figure 10–39 in Gimbutas 1991:392), could not have arisen in a vacuum. The mobile horse-riding and warrior people who buried their dead in Yamna type kurgans certainly could not have developed out of any west European culture.

The specific correspondence between the Yamna, late Vučedol, and Bell Beaker complexes is visible in burial rites which include grave pits under round barrows, the co-existence of cremation and inhumation rites, and the construction of mortuary houses. In armaments we see tanged or riveted triangular daggers made of arsenic copper, spear-points of arsenic copper and flint, concave-based or tanged triangular arrowheads of flint, and arrow straighteners. In ornaments there are necklaces of canine teeth, copper tubes or bird bones, boar tusks, and crescent-shaped pendants resembling breast plates⁴. In solar symbolism we find sun or star motifs excised and white-encrusted on the inside of braziers, or incised on bone or amber button-shaped beads. Techniques of ceramic decoration include stamping or gouging in zoned metopes, encrustation with white paste of delicate geometric motifs, zigzags, dashes, nets, lozenges, and dots or circles (a Baden-Kostolac-Vučedol tradition). Certain ceramic forms placed in graves, such as braziers and beakers, are from the Kurgan tradition. The correspondences linking the Bell Beaker and Yamna with the Vučedol—in armament, costume, funeral rites, beliefs in life after death, and in symbolism—are precisely the most significant and revealing.

Horse bones in a series of sites provide a clue to the mobility of the Bell Beaker people. Analysis of animal bones from the sites at Budapest (Czepel Hollandiut and Czepel-Haros) have shown that the horse was the foremost species of the domestic fauna, constituting over 60% of the total animal bones (Bökonyi 1974; Kalicz-Schreiber 1974). This suggests a large-scale domestication of the horse in the Carpathian basin. Bell Beaker migrations were carried out on horseback from central Europe as far as Spain (where horse bones have also been found

in Bell Beaker contexts; (Schule 1969)). The horse also played a significant role in religion, as can be seen from the remains of the horse sacrifice, where horse skulls are found in cremation graves.

The quantitative analysis of grave material indicates that the Bell Beaker people had a social composition approximating a ranked society. Three strata are represented; warriors (or rulers), craftsmen, and common folk (peasants). The richest graves are those of mature males. Grave goods indicating status are items such as earrings, button-shaped beads of amber, jet, and gold, belt-rings, and weapons.

8. The impact on Northern Europe: the expansion of the corded pottery culture of Central Europe to Northwestern Europe, the East Baltic area, and to Central Russia. The Corded Pottery (also called 'Battle Axe') complex is known not only from the north central European plain in Germany and Poland, but also from Holland, Denmark, southern Sweden, southern Norway, and the East Baltic countries as far as southern Finland in the northeast; the eastermost branch ('Fat'yanovo') reached the Upper Volga basin in central Russia. According to radiocarbon dates, expansion into northwestern and northeastern Europe, territories previously occupied by TRB (Funnel-Necked Beaker), Nemunas, Narva, and Volosovo cultures, took place before the middle of the 3rd millennium B.C.

In the earliest phase, grave equipment throughout this area exhibits features closely related to that of central Europe. Characteristic constituents are a beaker with horizontal cord impressions around the neck, a globular amphora with a radial pattern over the shoulder, a flint axe, a chisel, a blade or flake, and a stone battle axe (Type 'A'). The early phase is therefore called the "Common European Horizon" (Kempisty 1973; Schwidetzky 1980). Burial in timber or stone mortuary houses under a low earthen barrow is universal. The striking uniformity in all areas where Corded graves are found is a strong argument for a more or less simultaneous dispersion.

The social structure of the early Corded Pottery people is related to that of both the Globular Amphora and the Yamna of the Dnieper-Volga steppe. The barrows of the early phase contain only male skeletons and the central grave with mortuary pit-house structure probably honored a privileged individual. Apart from the primary burial, there are usually other graves dug into the earthen mounds which are close in time to that of the primary grave, and point to the existence of at least two social categories. It is of interest that the dug-in graves outnumber the central sub-barrow graves. The lower social stratum is

also represented by males. Not much is known about the burial of women and children in this period. Corded Pottery graves of the later period, however, show a normal constituency of females and juveniles.

Who were the Corded Pottery people? Do they represent an intrusion of a new Kurgan, i.e., Yamna, people from the east? Or does the Corded Pottery period simply represent a later phase of the Globular Amphora complex, pushed to the north and northeast by the influx of the Yamna People? These questions have not yet been resolved with any clarity. Both the Globular Amphora and Corded Pottery complexes contain components of the local TRB substratum and the Pontic steppe element. The TRB component is predominant in the physical type of the Corded Pottery population of Germany and Czechoslovakia, with the exception of some individuals who are considered to be of the steppe type. Analysis of the skeletal material from Poland shows a steppe origin. Elsewhere the bulk of the population were indigenous remnants of the Old Europeans.

9. Conclusion. Central Europe in the period 4500–2500 B.C. was in a constant state of transformation, due to repeated Kurgan incursions from the Volga and North Pontic steppe zone.

There were several major stages of transformation:

1. Around 4400–4300 B.C., horse-riding pastoralists from south Russia created the first shock wave and population shifts in the Danube basin. The flowering of Old Europe was truncated and the hybridization of two very different culture systems began. Most affected were the Black Sea littoral (Varna), Karanovo-Gumelnita, Vinča, Butmir, Lengyel, and Linearbandkeramik (LBK) cultures. The Cucuteni culture survived.
2. In the second half of the 4th millennium B.C., after Wave II from the North Pontic-north Caucasus region, the conversion of what was still Old European into an IE social structure and ideology was remarkably successful. Central Europe was now ruled from hillforts and by daggers made of hard metal (copper-arsenic alloy). The transition from a matricentric and matrilineal to a patrilineal and patriarchal system was accomplished. In the West, signs of Kurgan elements (single burials under round mounds) appeared in England and in eastern Ireland around 3500 B.C.
3. The massive Kurgan Wave III, from the lower Volga region around 3100–2900 B.C. into east central Europe, caused new ethnic shifts: the Indo-Europeanized populations of central Europe migrated northeast to

the East Baltic area and central Russia, northwest to southern Scandinavia, and south to Greece (known as Corded Pottery and Vučedol extensions).

4. The warlike and horse-riding Bell Beaker people of the middle and second half of the 3rd millennium B.C., who diffused over western Europe, are likely to have originated from an amalgam of remnants of the Vučedol people with the Yamna colonists (after Wave III) in Yugoslavia and Hungary (their parent culture is called 'Vinkovci-Samogjyvár'). This was the largest outmigration up to the west Mediterranean and the British Isles, before the onset of a more stable period, and the formations of bronze age cultural units.

5. By the third quarter of the 3rd millennium B.C., almost all parts of Old Europe were transformed economically and socially. Pastoralism and semi-nomadism increased and tillage decreased. Old European patterns of habitation vanished except for territories and islands which were never completely Indo-Europeanized.

The functions and images of Old European and IE deities, beliefs in an afterlife as contrasted to regeneration, and the entirely different sets of symbols prove the existence of two religions and mythologies—the indigenous Old European and the intrusive IE. Their collision in Europe resulted in the hybridization of two symbolic structures in which the Indo-European prevailed while the Old European survived as an undercurrent. Without this insight into different symbolic structures, the ideologies of European peoples and the genesis and meaning of their symbols, beliefs, and myths cannot be comprehended.

The clash between these two ideologies and social and economic structures led to the drastic transformation of Old Europe. These changes were expressed as the transition from matrilineal to patrilineal order, from a learned theocracy to a militant patriarchy, from a sexually balanced egalitarian society to a male-dominated hierarchy, and from a chthonic goddess religion to the IE sky-oriented pantheon of gods.

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ENDNOTES

¹Named after the eponymous fortified hill in the district of Constanța, Dobruja, Cernavoda II dates from a Second Wave site in the same area (Berciu 1973).

²The important sites are Békasmegyer at Budapest, Koroncó at Györ, Esztergom, Pfaffstet-